IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of David McElroy *et al.*	Art Unit : 1638
Appln. No. 09/801,261	Examiner : David Fox
Filed: March 7, 2001	Atty. Docket: DEKM:186US
For: Homologous Recombination-Mediated Transgene Alteration in Plants	

APPELLANT'S BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal of the final rejection of claims 52-65 pending in the above-described patent application. A Notice of Appeal was received by the USPTO via Facsimile Transmission on September 23, 2002. This Brief is timely submitted in triplicate.

Submitted herewith is a Fee Transmittal for FY2004 authorizing the Commissioner to charge the statutory fee of $330 for submitting this Brief to deposit account number 314125.

1. Real Party in Interest This application is assigned to DeKalb Genetics Corporation, which is a wholly-owned subsidiary of Monsanto Company, a Delaware corporation with offices at 800 North Lindbergh Boulevard, St. Louis, Missouri 63167. The real party in interest is Monsanto Company.

2. Related Appeals and Interferences Appellant is unaware of any other Appeals or Interferences related to this Appeal.

3. Status of Claims Originally filed claims 1-51 are cancelled and pending claims 52-65 stand rejected under the judicially created doctrine of provisional obviousness-type double patenting as

Certificate of Mailing under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed Mail Stop Appeal Brief-Patents, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on **November 17, 2003.**

Pamela C Ball
Pamela C. Ball, Reg. No. 53,963

11/17/03
Date

being unpatentable over claims of U.S. Patent No. 6,580,019 which issued from parent application Serial No. 09/521,557. The issued claims are listed in Appendix A.

Of the rejected claims on appeal, claim 52 is independent, claims 53, 56, 58, and 60-65 are dependent from claim 52, claims 54 and 55 are dependent from claim 53, claim 57 is dependent from claim 56 and claim 59 is dependent from claim 58. The rejected claims are listed in Appendix B. The outstanding rejection of pending claims 52-65 is appealed.

4. Status of Amendments The Advisory Action mailed July 7, 2003 stated that upon the filing of an appeal, the amendment to claims 52 and 53 proposed in the communication filed June 17, 2003 will be entered. The amendment is included in the appended claims.

5. Summary of Invention In the method of the present invention, non-reciprocal homologous recombination is used to remove all marker gene sequences situated between two related DNA sequences, resulting in the production of a marker-free transgenic plant.

This invention, as more specifically stated in independent claim 52, provides a method of preparing a marker-free fertile transgenic plant having all marker gene sequences removed from transgene insertions which comprise at least one marker gene DNA sequence flanked by directly repeated DNA sequences which are not recognized by a site-specific recombinase enzyme. Following homologous recombination, e.g. during the natural reproduction of progeny plants, certain progeny plants are marker-free and lack all marker gene sequences. The method comprises selecting a progeny fertile transgenic plant having all marker gene sequences deleted.

The marker genes removed by the method of the invention may be selectable marker genes or reporter genes (claim 53), for example *NPTII*, *bar* or *EPSPS* marker genes (claim 54) or *uidA*, *gfp* or *R*-locus reporter genes (claim 55).

The method may be practiced on any type of transgenic monocot or dicot plant (claims 56 and 58); preferred crop plants are specified in claims 57 and 59. The method is especially useful for producing marker-free, fertile transgenic maize and the marker-free transgene is heritable from generation to generation by self-fertilization, outcrossing or inbreeding (claims 60-62). One practicing the invention is able to delete marker genes from homozygous transgenic plants at a frequency of at least 0.1%, up to a frequency of at least 2%. Thus, without the use of site specific recombinases, integrases or specific site-specific recombination sites, one is able to

utilize the DNA recombination mechanisms resident in the plant cell to delete all marker sequences flanked by directly repeated DNA sequences in a transgenic insert in a plant.

6. Issues The sole issue in this appeal is whether independent claim 52 and dependent claims 53-65 are unpatentable under the judicially created doctrine of obviousness-type double patenting over claims of U.S. Patent No. 6,580,019 which issued from parent application Serial No. 09/521,557. Those claims are set forth in Appendix A.

The issued claims are directed to a method of preparing a fertile transgenic cereal plant having an altered transgene insertion. The method comprises obtaining a first fertile transgenic cereal plant homozygous for a transgene insertion DNA sequence. The transgene insertion DNA sequence comprises a pre-selected DNA sequence flanked by directly repeated DNA sequences. The directly repeated sequences are not recognized by a site-specific recombinase enzyme. The method comprises selecting a progeny fertile transgenic cereal plant wherein at least a portion of the transgene insertion is altered (i.e., deleted, amplified or rearranged) as compared to the first fertile transgenic cereal plant.

7. Grouping of claims As all rejected claims are directed to a method of preparing marker-free, fertile transgenic plants, Appellant consents to the Board deciding the merits of this appeal with consideration only of the broadest claim on appeal, i.e. claim 52.

8. Argument

Obviousness-Type Double Patenting Rejection

Pending claims 52-65 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims in U.S. Patent No. 6,580,019. In the Advisory Action, the Examiner maintains that the instant claims are co-extensive with the claims issued from the parent application and states that there is "no evidence of non-obviousness (i.e., unexpected results) to extrapolate monocot method of the parent to other agronomic crops as claimed in claim 52, particularly when dependent claims of instant are limited to monocots/cereals."

Appellants argue however, that it is not obvious to apply the monocot method of the parent application to non-crop or dicot plants for the removal of all marker gene sequences.

Applicants submit that amendment to claim 52, requiring removal of all marker genes, renders the rejected claims even more patentably distinct from the issued claims which do not require or suggest removal of all marker gene sequences. Issued claims from U.S. Patent No. 6,580,019 are directed to the alteration of at least a portion of the transgene in a monocot plant such that the portion is deleted, amplified or rearranged. The claims do not require the complete removal of marker sequences. The Examiner has provided no motivation of evidence to a person of ordinary skill in the art to modify the method of the issued claims to obtain complete removal of marker genes. Rejections for obviousness-type double patenting must be supported by clear evidence. See *In re Kaplan* 229 USPQ 678 (Fed. Cir. 1986). Additionally, it is impermissible to use the common disclosure of the inventions as though it were prior art to support an obviousness aspect of the rejection. Absent such motivation and evidence, Appellants maintain that the rejection is improper.

Appellants traverse the Examiner's assertion that the claims of the issued parent application and the pending application are co-extensive. Appellants submit that the claims of the parent patent and the pending application are not only distinct but, in fact, show a two-way distinctness.

The issued claims are directed to a method of preparing a fertile transgenic cereal plant having an altered transgene insertion while the rejected claims are directed to a method of preparing a marker-free, fertile transgenic plant having all marker gene sequences removed from transgene insertions. The rejected claims are distinct, e.g. the rejected claims could be infringed by applying the method to a dicot plant without infringing the issued claims. One-way distinctness is present in that the issued claims could be infringed by deleting one, but not every, marker gene from a transgene insert in a cereal plant without infringing the rejected claims. Alternatively, one-way distinctness is present in that the issued claims could be infringed by amplification or rearrangement of a transgene DNA without infringing the rejected claims. Appellants also point out that according to the method of the issued claims, the alteration of the transgene insertion may involve any DNA sequences flanked by directly repeated DNA sequence and is not limited to the alteration of a marker gene.

Two-way distinctness is present because the method of the rejected claims can be infringed by the deletion of all marker genes from a dicot plant without infringing the issued claims. Clearly, there is two-way distinctness. Appellants maintain that the same invention is

not twice claimed in the two applications (See *In re Vogel* 164 USPQ 619 (CCPA 1970)) and that a marker free plant is not an obvious variation of the issued claims.

Lacking a motivation to apply the monocot method of the parent to the instant claims, as well as the existence of examples showing two-way distinctness between the claims of the parent and pending applications, Appellant requests reconsideration and withdrawal of the provisional obviousness-type double patenting rejection.

CONCLUSION

In view of the foregoing, it is respectfully requested that the Board of Patent Appeals and Interferences reverse the final rejection of all of the appealed claims.

Respectfully submitted,

Date: November 17, 2003

Pamela C Ball

Pamela C. Ball
Registration No. 53,963
Agent for Appellant
Phone: 860-572-5265

Appendix A. Issued claims of U.S. Patent No. 6,580,019.

What is claimed is:

1. A method of preparing a fertile transgenic cereal plant having an altered transgene insertion, comprising: a) obtaining a first fertile transgenic cereal plant homozygous for a transgene insertion DNA sequence, wherein the transgene insertion DNA sequence comprises a pre-selected DNA sequence flanked by directly repeated DNA sequences, wherein said directly repeated sequences are not recognized by a site-specific recombinase enzyme; b) obtaining a plurality of progeny of any generation of the first fertile transgenic cereal plant; and c) selecting a progeny fertile transgenic cereal plant wherein at least a portion of the transgene insertion is altered as compared to the first fertile transgenic cereal plant.

2. The method of claim 1 wherein the pre-selected DNA sequence comprises a selectable marker gene or a reporter gene.

3. The method of claim 1 wherein the pre-selected DNA sequence comprises a bar, nptII, or cryIA(b) gene.

4. The method of claim 1 wherein the plurality of progeny plants are obtained by self-pollination.

5. The method of claim 1 wherein the plurality of progeny plants are obtained by outcrossing to produce hybrid progeny.

6. The method of claim 1 wherein the plurality of progeny plants are obtained by inbreeding to produce inbred plants.

7. The method of claim 1 wherein the cereal plant is a maize, barley, wheat, rye or rice plant.

8. The method of claim 7 wherein the plant is a maize plant.

9. The method of claim 1 wherein at least a portion of the transgene insertion is altered in that it has been deleted, amplified, or rearranged.

Appendix B. Listing of pending claims as amended.

What is claimed is:

52. A method of preparing a marker-free fertile transgenic plant having all marker gene sequences removed from transgene insertions comprising:

a) obtaining a first fertile transgenic plant homozygous for a transgene insertion DNA sequence, wherein the transgene insertion DNA sequence comprises at least one marker gene DNA sequence flanked by directly repeated DNA sequences, wherein said directly repeated sequences are not recognized by a site-specific recombinase enzyme;

b) obtaining a plurality of progeny of any generation of the first fertile transgenic plant; and

c) selecting a progeny fertile transgenic plant wherein all marker gene sequences are deleted.

53. The method of claim 52 wherein the marker gene comprises a selectable marker gene or reporter gene.

54. The method of claim 53 wherein the selectable marker gene comprises a *bar, nptII,* or a glyphosate resistant EPSPS enzyme gene.

55. The method of claim 53 wherein the reporter gene comprises a *uid*A gene, a *gfp* gene or an R-locus gene.

56. The method of claim 52 wherein the plant is a monocot.

57. The method of claim 56 wherein the monocot plant is a maize, barley, sorghum, wheat, rye or rice plant.

58. The method of claim 52 wherein the plant is a dicot.

59. The method of claim 58 wherein the dicot plant is a soybean, cotton, canola, or potato plant.

60. The method of claim 52 wherein said plant is maize and the plurality of progeny plants are obtained by self pollination.

61. The method of claim 52 wherein said plant is maize and the plurality of progeny plants are obtained by outcrossing to produce hybrid progeny.

62. The method of claim 52 wherein said plant is maize and the plurality of progeny plants are obtained by inbreeding to produce inbred plants.

63. The method of claim 52 wherein the marker gene is deleted at a frequency of at least 0.1%.

64. The method of claim 52 wherein the marker gene is deleted at a frequency of at least 0.6%.

65. The method of claim 52 wherein the marker gene is deleted at a frequency of at least 2%.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of David McElroy *et al.*	Art Unit : 1638
Appln. No. 09/801,261	Examiner : David Fox
Filed: March 7, 2001	Atty. Docket: DEKM:186US
For: Homologous Recombination-Mediated Transgene Alteration in Plants	

APPELLANT'S BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal of the final rejection of claims 52-65 pending in the above-described patent application. A Notice of Appeal was received by the USPTO via Facsimile Transmission on September 23, 2002. This Brief is timely submitted in triplicate.

Submitted herewith is a Fee Transmittal for FY2004 authorizing the Commissioner to charge the statutory fee of $330 for submitting this Brief to deposit account number 314125.

1. Real Party in Interest This application is assigned to DeKalb Genetics Corporation, which is a wholly-owned subsidiary of Monsanto Company, a Delaware corporation with offices at 800 North Lindbergh Boulevard, St. Louis, Missouri 63167. The real party in interest is Monsanto Company.

2. Related Appeals and Interferences Appellant is unaware of any other Appeals or Interferences related to this Appeal.

3. Status of Claims Originally filed claims 1-51 are cancelled and pending claims 52-65 stand rejected under the judicially created doctrine of provisional obviousness-type double patenting as

Certificate of Mailing under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed Mail Stop Appeal Brief-Patents, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on **November 17, 2003.**

Pamela C. Ball
Pamela C. Ball, Reg. No. 53,963

11/17/03
Date

being unpatentable over claims of U.S. Patent No. 6,580,019 which issued from parent application Serial No. 09/521,557. The issued claims are listed in Appendix A.

Of the rejected claims on appeal, claim 52 is independent, claims 53, 56, 58, and 60-65 are dependent from claim 52, claims 54 and 55 are dependent from claim 53, claim 57 is dependent from claim 56 and claim 59 is dependent from claim 58. The rejected claims are listed in Appendix B. The outstanding rejection of pending claims 52-65 is appealed.

4. Status of Amendments The Advisory Action mailed July 7, 2003 stated that upon the filing of an appeal, the amendment to claims 52 and 53 proposed in the communication filed June 17, 2003 will be entered. The amendment is included in the appended claims.

5. Summary of Invention In the method of the present invention, non-reciprocal homologous recombination is used to remove all marker gene sequences situated between two related DNA sequences, resulting in the production of a marker-free transgenic plant.

This invention, as more specifically stated in independent claim 52, provides a method of preparing a marker-free fertile transgenic plant having all marker gene sequences removed from transgene insertions which comprise at least one marker gene DNA sequence flanked by directly repeated DNA sequences which are not recognized by a site-specific recombinase enzyme. Following homologous recombination, e.g. during the natural reproduction of progeny plants, certain progeny plants are marker-free and lack all marker gene sequences. The method comprises selecting a progeny fertile transgenic plant having all marker gene sequences deleted.

The marker genes removed by the method of the invention may be selectable marker genes or reporter genes (claim 53), for example *NPTII*, *bar* or *EPSPS* marker genes (claim 54) or *uidA*, *gfp* or *R*-locus reporter genes (claim 55).

The method may be practiced on any type of transgenic monocot or dicot plant (claims 56 and 58); preferred crop plants are specified in claims 57 and 59. The method is especially useful for producing marker-free, fertile transgenic maize and the marker-free transgene is heritable from generation to generation by self-fertilization, outcrossing or inbreeding (claims 60-62). One practicing the invention is able to delete marker genes from homozygous transgenic plants at a frequency of at least 0.1%, up to a frequency of at least 2%. Thus, without the use of site specific recombinases, integrases or specific site-specific recombination sites, one is able to

utilize the DNA recombination mechanisms resident in the plant cell to delete all marker sequences flanked by directly repeated DNA sequences in a transgenic insert in a plant.

6. Issues The sole issue in this appeal is whether independent claim 52 and dependent claims 53-65 are unpatentable under the judicially created doctrine of obviousness-type double patenting over claims of U.S. Patent No. 6,580,019 which issued from parent application Serial No. 09/521,557. Those claims are set forth in Appendix A.

The issued claims are directed to a method of preparing a fertile transgenic cereal plant having an altered transgene insertion. The method comprises obtaining a first fertile transgenic cereal plant homozygous for a transgene insertion DNA sequence. The transgene insertion DNA sequence comprises a pre-selected DNA sequence flanked by directly repeated DNA sequences. The directly repeated sequences are not recognized by a site-specific recombinase enzyme. The method comprises selecting a progeny fertile transgenic cereal plant wherein at least a portion of the transgene insertion is altered (i.e., deleted, amplified or rearranged) as compared to the first fertile transgenic cereal plant.

7. Grouping of claims As all rejected claims are directed to a method of preparing marker-free, fertile transgenic plants, Appellant consents to the Board deciding the merits of this appeal with consideration only of the broadest claim on appeal, i.e. claim 52.

8. Argument

Obviousness-Type Double Patenting Rejection

Pending claims 52-65 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims in U.S. Patent No. 6,580,019. In the Advisory Action, the Examiner maintains that the instant claims are co-extensive with the claims issued from the parent application and states that there is "no evidence of non-obviousness (i.e., unexpected results) to extrapolate monocot method of the parent to other agronomic crops as claimed in claim 52, particularly when dependent claims of instant are limited to monocots/cereals."

Appellants argue however, that it is not obvious to apply the monocot method of the parent application to non-crop or dicot plants for the removal of all marker gene sequences.

Applicants submit that amendment to claim 52, requiring removal of all marker genes, renders the rejected claims even more patentably distinct from the issued claims which do not require or suggest removal of all marker gene sequences. Issued claims from U.S. Patent No. 6,580,019 are directed to the alteration of at least a portion of the transgene in a monocot plant such that the portion is deleted, amplified or rearranged. The claims do not require the complete removal of marker sequences. The Examiner has provided no motivation of evidence to a person of ordinary skill in the art to modify the method of the issued claims to obtain complete removal of marker genes. Rejections for obviousness-type double patenting must be supported by clear evidence. See *In re Kaplan* 229 USPQ 678 (Fed. Cir. 1986). Additionally, it is impermissible to use the common disclosure of the inventions as though it were prior art to support an obviousness aspect of the rejection. Absent such motivation and evidence, Appellants maintain that the rejection is improper.

Appellants traverse the Examiner's assertion that the claims of the issued parent application and the pending application are co-extensive. Appellants submit that the claims of the parent patent and the pending application are not only distinct but, in fact, show a two-way distinctness.

The issued claims are directed to a method of preparing a fertile transgenic cereal plant having an altered transgene insertion while the rejected claims are directed to a method of preparing a marker-free, fertile transgenic plant having all marker gene sequences removed from transgene insertions. The rejected claims are distinct, e.g. the rejected claims could be infringed by applying the method to a dicot plant without infringing the issued claims. One-way distinctness is present in that the issued claims could be infringed by deleting one, but not every, marker gene from a transgene insert in a cereal plant without infringing the rejected claims. Alternatively, one-way distinctness is present in that the issued claims could be infringed by amplification or rearrangement of a transgene DNA without infringing the rejected claims. Appellants also point out that according to the method of the issued claims, the alteration of the transgene insertion may involve any DNA sequences flanked by directly repeated DNA sequence and is not limited to the alteration of a marker gene.

Two-way distinctness is present because the method of the rejected claims can be infringed by the deletion of all marker genes from a dicot plant without infringing the issued claims. Clearly, there is two-way distinctness. Appellants maintain that the same invention is

not twice claimed in the two applications (See *In re Vogel* 164 USPQ 619 (CCPA 1970)) and that a marker free plant is not an obvious variation of the issued claims.

Lacking a motivation to apply the monocot method of the parent to the instant claims, as well as the existence of examples showing two-way distinctness between the claims of the parent and pending applications, Appellant requests reconsideration and withdrawal of the provisional obviousness-type double patenting rejection.

CONCLUSION

In view of the foregoing, it is respectfully requested that the Board of Patent Appeals and Interferences reverse the final rejection of all of the appealed claims.

Respectfully submitted,

Date: November 17, 2003

Pamela C Ball

Pamela C. Ball
Registration No. 53,963
Agent for Appellant
Phone: 860-572-5265

Appendix A. Issued claims of U.S. Patent No. 6,580,019.

What is claimed is:

1. A method of preparing a fertile transgenic cereal plant having an altered transgene insertion, comprising: a) obtaining a first fertile transgenic cereal plant homozygous for a transgene insertion DNA sequence, wherein the transgene insertion DNA sequence comprises a pre-selected DNA sequence flanked by directly repeated DNA sequences, wherein said directly repeated sequences are not recognized by a site-specific recombinase enzyme; b) obtaining a plurality of progeny of any generation of the first fertile transgenic cereal plant; and c) selecting a progeny fertile transgenic cereal plant wherein at least a portion of the transgene insertion is altered as compared to the first fertile transgenic cereal plant.

2. The method of claim 1 wherein the pre-selected DNA sequence comprises a selectable marker gene or a reporter gene.

3. The method of claim 1 wherein the pre-selected DNA sequence comprises a bar, nptII, or cryIA(b) gene.

4. The method of claim 1 wherein the plurality of progeny plants are obtained by self-pollination.

5. The method of claim 1 wherein the plurality of progeny plants are obtained by outcrossing to produce hybrid progeny.

6. The method of claim 1 wherein the plurality of progeny plants are obtained by inbreeding to produce inbred plants.

7. The method of claim 1 wherein the cereal plant is a maize, barley, wheat, rye or rice plant.

8. The method of claim 7 wherein the plant is a maize plant.

9. The method of claim 1 wherein at least a portion of the transgene insertion is altered in that it has been deleted, amplified, or rearranged.

Appendix B. Listing of pending claims as amended.

What is claimed is:

52. A method of preparing a marker-free fertile transgenic plant having all marker gene sequences removed from transgene insertions comprising:

a) obtaining a first fertile transgenic plant homozygous for a transgene insertion DNA sequence, wherein the transgene insertion DNA sequence comprises at least one marker gene DNA sequence flanked by directly repeated DNA sequences, wherein said directly repeated sequences are not recognized by a site-specific recombinase enzyme;

b) obtaining a plurality of progeny of any generation of the first fertile transgenic plant; and

c) selecting a progeny fertile transgenic plant wherein all marker gene sequences are deleted.

53. The method of claim 52 wherein the marker gene comprises a selectable marker gene or reporter gene.

54. The method of claim 53 wherein the selectable marker gene comprises a *bar, nptII,* or a glyphosate resistant EPSPS enzyme gene.

55. The method of claim 53 wherein the reporter gene comprises a *uid*A gene, a *gfp* gene or an R-locus gene.

56. The method of claim 52 wherein the plant is a monocot.

57. The method of claim 56 wherein the monocot plant is a maize, barley, sorghum, wheat, rye or rice plant.

58. The method of claim 52 wherein the plant is a dicot.

59. The method of claim 58 wherein the dicot plant is a soybean, cotton, canola, or potato plant.

60. The method of claim 52 wherein said plant is maize and the plurality of progeny plants are obtained by self pollination.

61. The method of claim 52 wherein said plant is maize and the plurality of progeny plants are obtained by outcrossing to produce hybrid progeny.

62. The method of claim 52 wherein said plant is maize and the plurality of progeny plants are obtained by inbreeding to produce inbred plants.

63. The method of claim 52 wherein the marker gene is deleted at a frequency of at least 0.1%.

64. The method of claim 52 wherein the marker gene is deleted at a frequency of at least 0.6%.

65. The method of claim 52 wherein the marker gene is deleted at a frequency of at least 2%.

Image

1638 AF

PTO/SB/17 (10-03)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 330

Complete if Known	
Application Number	09/801,261
Filing Date	03/07/2001
First Named Inventor	David McElroy et al.
Examiner Name	David T. Fox
Art Unit	1638
Attorney Docket No.	DEKM186US

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 134125

Deposit Account Name: Monsanto Company

The Director is authorized to: *(check all that apply)*

☑ Charge fee(s) indicated below ☑ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		X =
Independent Claims		- 3** =		X =
Multiple Dependent				=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 330

SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Pamela C. Ball	*Registration No. (Attorney/Agent)*	53,963	*Telephone*	860-572-5265
Signature	Pamela C Ball			*Date*	11/17/03

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.